WINCHESTER. **Senegal:** G.M.S. noted two Senegal Turtledoves at a farmhouse three miles south of Winchester on April 15, 1959, and one at the same place on Nov. 5, 1962.

WOOLUNDRA. **Senegal:** Two noted by G.M.S. on Dec. 22, 1962.

SUMMARY

Recent records leave an impression that, especially in the Wheatbelt, more Senegal Doves are being observed away from towns. More locality records are reported for both species.

ADDITIONAL OBSERVATIONS ON THE LIFE HISTORY OF THE MOUNTAIN DEVIL, *MOLOCH HORRIDUS,* IN CAPTIVITY

By C. C. SPORN, Mandurah.

In earlier numbers of this journal (*W. Aust. Nat.*, 5, 1955: 1; 6, 1958: 136) I gave accounts of the observations of my wife and myself on Mountain Devils *(Moloch horridus)* which we reared in captivity. Since the second article we have had further successes in the breeding of the young lizards, particulars of which may be placed on record. I am also providing additional data on various other aspects of the life history of the species gathered since my last publication.

BREEDING HISTORIES

There was a lean period between the years 1958 and 1963 when only one rather deformed little lizard emerged from a batch of eggs laid by a daughter of our old female "Florence." It lived only a few months and made scarcely any growth during that time. Of the remaining eggs five were addled and the sixth contained a half-formed embryo. This we ascertained by digging out the burrow afterwards.

On November 2, 1962, "Deidre," a 4½-year-old granddaughter of "Florence," burrowed for the second time and on March 19, 1963, six young lizards scratched their way out from the burrow. This gave an incubation period of 132 days, the longest yet recorded. Five of these lizards have survived and have shown a somewhat greater rate of growth than that given in the table in my second article. This may, perhaps, be due to a more abundant food supply.

On October 22, 1963, "Florence's" daughter, "Judy," then 9½ years old, began excavating her sixth annual burrow and the next day "Deidre" also began operations. The egg-laying, filling in, etc., was finished off by both lizards by October 25. When "Deidre" began work she jumped "Judy's" claim and both were digging in the same hole. I started a little excavation a foot or two away from "Judy's" burrow and introduced "Deidre" to it. She was quite satisfied with this and carried on with the new tunnel, an awkward situation thus being averted. Two months later "Deidre" burrowed again and laid a second lot of eggs (number unknown) on December 29. This is the only instance I have known of a double clutch in these lizards and it must be very unusual. "Deidre" was in very poor condition for weeks after this.

On February 28, 1964, 126 days later, "Judy's" offspring, nine of them, emerged from their burrow, a very lively lot of youngsters. I had the good fortune of seeing them while three were still at the mouth of the cavity. Apparently they scratch their way to the surface during the night and come out early in the morning. Neither of "Deidre's" clutches came to anything; possibly they were infertile.

AGE AT FIRST BREEDING

One of our female lizards mated when she was a month or two over 3 years of age and laid her eggs early the following November, which would make her 3½ years at burrowing time. The male mated for the first time when he first turned 3 years. The other female was 4 years old when she first mated.

In December 1962 someone gave us a young female which I estimated at the time, judging by her appearance and size to be 3+ years. On December 14 she laid four eggs. These were deposited on the ground as the lizard in question had been captured only a few days before being passed on to us.

I am inclined to believe that Molochs, both male and female, under normal conditions become sexually mature when 3 years old, although they do not reach their full size until several years later.

EGG-LAYING DATES

I have recorded the following dates of egg-laying among our captive Molochs:

1953. November 29 ("Florence").
1954. November 14 ("Florence").
1957. November 19 ("Deidre's" mother).
1958. November 13 ("Judy"), December 9 ("Deidre's" mother).
1959. October 16 ("Judy").
1960. October 31 ("Judy").
1961. November 2 ("Judy"), November 5 ("Deidre").
1962. October 23 ("Judy"), November 3 ("Deidre").
1963. October 25 ("Judy" and "Deidre"), December 29 ("Deidre's" second clutch).

SUMMARY OF INCUBATION PERIODS

From data published in this and the two preceding articles the following incubation periods have been recorded by us: 90 days, between 98 and 100 days, 126 days, 128 days, and 132 days. The mean of this sample of five observations is 115 days.

GROWTH RATES

In my second article (*ibid,* p. 137) I tabulated the growth rates of a male and female offspring of "Florence" from the period of hatching until they were four years of age. The following table gives their lengths at successive yearly intervals over a period of years:

Date	Age	Female, "Judy"	Male, "Punch"
Feb. 1956	2 years	14.0 c.m.	13.5 c.m.
„ 1957	3 „	16.1 „	15.0 „
„ 1958	4 „	17.2 „	15.7 „
„ 1959	5 „	17.9 „	15.8 „
„ 1960	6 „	(no records)	
„ 1961	7 „	18.3 „	16.2 „ (full grown)
„ 1962	8 „	18.8 „ (full grown)	Died Aug., 1962

These measurements are only approximate as they were taken with an ordinary ruler but they are somewhere near the mark.

The female "Deidre," hatched in late February 1958, measured at 1 year, 11.7 cm.; at 2 years, 15.2 cm.; at 3 years, 16.4 cm.; at 4 years, 17.0 cm.; and at 5 years, 17.3 cm. She made more rapid growth than "Judy" during the first two years but slowed down later on.

There is some variation in the physical characteristics of these animals, some are shorter and more thickset than others. And there is, naturally, some variation in size of individuals of the same brood. The five young ones that survived of the six hatched on March 19, 1963, reached the following lengths at one year of age: 12.0, 12.1, 12.4, 12.6 and 13.0 cm. Owing to their late hatching they did not before the winter grow as fast as their mother "Deidre" had done, but during the spring and summer when the ants were very plentiful they grew rapidly.

LONGEVITY

Our data are not sufficiently extensive to provide definite evidence as to how long Molochs live but we feel that it could be in the vicinity of 20 years or so. The old female "Florence" died early in August 1964, and as we acquired her as a nearly fully-grown lizard in October 1951 she must have been near that age when she died. (In the previous section it was indicated that female Molochs do not attain their full size until about 8 years of age.) She had slowed up in her activities considerably in latter years and shed her skin only every second year or so. She last bred in 1954.

NOTES ON MATING BEHAVIOUR

These lizards become sexually active and mate in the late summer and during the warm days of early autumn, from late March to late April.

When sexually excited the male runs around very actively and bobs his head up and down very rapidly. The female appears to flatten herself on the ground at the same time, giving a series of rapid taps on the ground with one of her forefeet. It rather reminds one of the way a wrestler taps the mat with his hand when he is being subjected to a painful hold, but with the lizard this motion is much more rapid.